

SHORT REPORT

Progressive Acute Abdominal Aortic Syndrome

H. Takagi*, Y. Mori, Y. Fukumoto, Y. Umeda, S. Nachi and H. Hirose

First Department of Surgery, Gifu University School of Medicine, Gifu, Japan

Key Words: Acute aortic syndrome.

Introduction

Vilacosta and associates have recently described the pathology of a new cardiovascular syndrome, acute aortic syndrome.¹ This syndrome embraces a heterogeneous group of patients with a similar clinical profile that includes penetrating atherosclerotic aortic ulcer, intramural aortic haematoma, and classic aortic dissection.² The authors describe progressive acute abdominal aortic syndrome, in which the penetration of the ulcer occurred at the dorsal end of the abdominal aorta and progressed rapidly and cranially.

Case Report

A 64-year-old man with back pain was referred to our department. He had undergone abdominal computed tomography (CT) scans because of epigastric pain nearly two months earlier, and a mass dorsal to the normal-calibre abdominal aorta had been retrospectively diagnosed (Fig. 1, upper panel). The mass had been seen on only one slice of the scans. Repeated CT scans when his back pain started revealed that the mass had expanded cranially and was at least 2 cm in diameter (Fig. 1, lower panel). The mass was adjacent to the aorta but did not fill with contrast. The patient was diagnosed as having a thrombosed pseudoaneurysm preoperatively, and semiurgent surgery was performed because of rapid expansion of the aneurysm and the back pain. At operation, there was neither a defect of the posterior aortic wall nor a mural thrombus but the posterior wall was remarkably

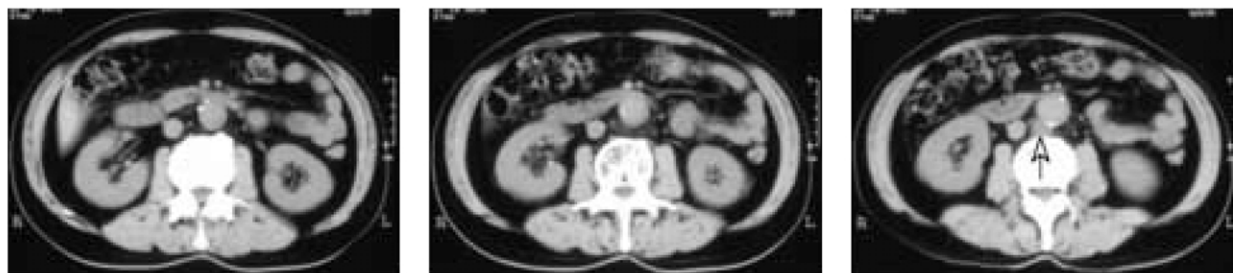
thickened. The diseased aorta was successfully replaced with a tube graft. Histopathological examination of the thickened wall failed to show a false aneurysm so the postoperative diagnosis was considered to be rupture of an atherosclerotic plaque. The patient has complained of no back pain postoperatively and is doing well 3 months after the operation.

Discussion

Although rupture of a normal-calibre aorta is usually caused by trauma, dissection, infection or steroid use, spontaneous perforation of the nonaneurysmal atherosclerotic aorta, i.e. acute aortic syndrome,¹ has rarely been described. Penetrating atherosclerotic aortic ulcer, which Stanson and colleagues³ have described, is a distinct clinico-pathological entity which most commonly involves the thoracic aorta. According to Goldstein and co-workers' review⁴ in 1997, nine cases of atraumatic spontaneous rupture in the setting of nonaneurysmal, noninfected abdominal aorta have been found. In acute aortic syndrome, the aortic ulcer possibly progresses to intramural haematoma or classic dissection.² In the present case, the penetrating atherosclerotic ulcer of the dorsal abdominal aorta probably progressed cranially because of the limited space between the aorta and the lumbar vertebrae, and the progression was extremely rapid, 2 cm cranially in only 50 days, with back pain. To our knowledge, this progressive pattern in acute aortic syndrome has not previously been described. The absence of aneurysmal dilatation or an inflammatory process suggests that the contained aortic rupture may have resulted from transmural plaque fracture through an area of

*Corresponding author. H. Takagi, First Department of Surgery, Gifu University School of Medicine, 40 Tsukasa, Gifu 500-8705, Japan.

2 Dec. 2002



22 Jan. 2003



Fig. 1. Computed tomography scans 50 days before show a mass dorsal to the abdominal aorta in only 1 slice of the scans (open arrow in the upper panel), retrospectively diagnosed (see text). Repeated scans at the onset of back pain revealed that the mass, which was adjacent to the aorta but not filled with contrast, had progressed cranially to be seen in three slices (closed arrows in the lower panel).

atheromatous thinning or, alternatively, from a penetrating ulcer which evolved over the period of 1 month into transmural rupture.⁴ Although the natural history of acute aortic syndrome has not been clearly defined, the present case suggests that penetrating atherosclerotic aortic ulcer can progress over a short period. To avoid transmural aortic rupture in patients with acute aortic syndrome, careful follow-up, such as repeated CT scanning, is recommended, and surgical intervention should be performed when the penetrating atherosclerotic ulcer is seen to progress.

References

- 1 VILACOSTA I, SAN ROMAN JA, ARAGONCILLO P *et al.* Penetrating atherosclerotic aortic ulcer: documentation by transesophageal echocardiography. *J Am Coll Cardiol* 1998; **32**: 83–89.
- 2 VILACOSTA I, ROMAN JA. Acute aortic syndrome. *Heart* 2001; **85**: 365–368.
- 3 STANSON AW, KAZMIE FJ, HOLLIER LH *et al.* Penetrating atherosclerotic ulcers of the thoracic aorta: natural history and clinicopathologic correlations. *Ann Vasc Surg* 1986; **1**: 15–23.
- 4 GOLDSTEIN DJ, FLORES RM, TODD GJ. Rupture of a nonaneurysmal atherosclerotic infrarenal aorta. *J Vasc Surg* 1997; **26**: 700–703.

Accepted 20 November 2003